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**REMARKS**

Claims 1-47 were previously pending in this application. Applicants are canceling claims 2, 12, 22, 25-32, and 38 without prejudice or disclaimer. Claims 1, 11, 21, 23 and 33 are currently amended. No claims are added. As a result claims 1, 3-11, 13-21, 23-24, 33-37, and 39-47 remain pending for examination with claims 1, 11, 21, and 46 being independent claims. No new matter has been added.

**Rejection Under 35 U.S.C. § 102**

Claims 1-10 and 46 stand rejected under 35 U.S.C. § 102(b) as being anticipated by the teaching of Moser et al. in U.S. Patent No. 5,770,164 (hereinafter Moser et al.).

Applicants respectfully disagree that Moser et al. teach each and every limitation recited in each of independent claims 1 and 46. Moser et al. teach a flue gas desulfurization system utilizing a clear organic acid additive. As shown in Fig. 1, Moser et al. teach a system having a scrubber/absorber, a reactor, and a clarifier. However, Moser et al. fail to teach a column comprising at least one internal element positioned within the column. As discussed in the present specification, the internal elements may comprise trays with surfaces having downward slopes designed and constructed to shed any precipitated salt. Moser et al. do not teach this recited limitation. Accordingly, independent claims 1 and 46 cannot be anticipated by the teaching of this cited reference.

Dependent claims 3-10 depend ultimately from independent claim 1. These dependent claims are likewise not anticipated by a teaching of Moser et al. for at least the same reasons discussed above.

Dependent claim 2 has been cancelled thereby rendering the rejection as to this claim moot.

Accordingly, Applicants respectfully request reconsideration and withdrawal of the rejection under 35 U.S.C. § 102.

**Rejection Under 35 U.S.C. § 103**

Claims 11-45 and 47 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the teaching of Moser et al. in view of the teaching of Zolotoochin et al. in U.S. Patent No. 5,976,485 (hereinafter Zolotoochin et al).

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Applicants also respectfully disagree that claims 11-45 and 47 would have been obvious over the teaching of Moser et al. in view of the teaching of Zolotoochin et al.

Preliminarily, there is no *prima facie* case of obviousness because there is no teaching, suggestion, or motivation to combine the teachings of the cited references.

As discussed above, Moser et al. fails to teach a system comprising a column comprising at least one internal element, e.g., trays, having at least one downwardly sloping surface. Zolotoochin et al. teach a sodium metabisulfite process utilizing the system that has an absorber, a crystallizer, a separator, a digester, and a dryer. However, like Moser et al., Zolotoochin et al. does not teach a column comprising at least one internal element positioned within the column wherein the internal element comprises at least one tray having at least one downwardly sloping surface.

Also, none of the references teach, suggest, or provide any motivation for a method of producing sodium metabisulfite comprising introducing a gas stream comprising sulfur dioxide into a column and precipitating sodium metabisulfite from a sodium metabisulfite stream in a crystallizer wherein the column and the crystallizer are operated at substantially the same temperature. Finally, none of the references teaches, suggests, or provides any motivation for a system for precipitating salts comprising a second feed inlet in communication with a mixing slurry tank supplying a third reactant.

Even if the teachings could have been combined, there is no reasonable expectation that the proposed combination would be successful. Significantly, the chemical reactions disclosed by Moser et al. do not produce sodium metabisulfite and the chemical reaction involved in the teaching of Zolotoochin et al. do not produce calcium sulfite. Thus, the principles of operation of each of the disclosed systems differ significantly and one of ordinary skill in the art would require more than routine experimentation to modify the system and technique of Moser et al. into a system that produces sodium metabisulfite. Therefore, any *prima facie* case of obviousness is rebutted.

Moreover, one skilled in the art relying on the teachings of these references would not seek to include an internal element having at least one downward sloping surface into a column of the proposed system. Moser et al. provides a flue gas desulfurization process scrubber which is packed to improve efficiency. The process utilizes a process that controls calcium sulfite relative saturation to avoid the formation of scale and encrustation. (Moser et al. at, for example,

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column 4, lines 5-16 and lines 29-41; column 5, line 62-column 6, line 10; column 6, line 64-column 7, line 19.) Zolotoochin et al. provides a packed bed absorption tower operating at increased temperatures to raise the solubility of sodium metabisulfite in the reaction liquor which keeps any sodium metabisulfite from crystallizing until the liquor is cooled in the crystallizer. (Zolotoochin et al. at column 3, lines 27-46.) There would be no advantage realized by utilizing an internal element capable of shedding any precipitated salt because salt precipitation in the column or tower is explicitly avoided by the teachings of the cited references. Therefore, because one skilled in the art would not modify the teachings of the references, alone or in combination, to comprise an internal element having a downward sloping surface, any alleged *prima facie* case of obviousness is rebutted.

Accordingly, Applicants respectfully request reconsideration and withdrawal of the rejection under 35 U.S.C. § 103.

### CONCLUSION

In view of the foregoing Amendments and Remarks, this application is in condition for allowance. A notice to this effect is respectfully requested. If the Examiner believes that the application is not in condition for allowance, the Examiner is requested to call Applicants' attorney at the telephone number listed below.

If this Response is not considered timely filed and if a request for an extension of time is otherwise absent, Applicant hereby requests any necessary extension of time.

No fee is due. If there is a fee occasioned by this Response, including an extension fee, that is not covered by an enclosed check, please charge any deficiency to Deposit Account No. 500214.

Respectfully submitted,  
Thomas A. Pecoraro, et al.

By: 

Peter C. Lando, Reg. No. 34,654  
Elias Domingo, Reg. No. 52,827  
LOWRIE, LANDO & ANASTASI, LLP  
One Main Street  
Cambridge, Massachusetts 02142  
Telephone: 617-395-7000  
Facsimile: 617-395-7070

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